It was about this time, also, that he seems to have paid some attention to the subject of the resistance of fluids, to which his experiments with water wheels would naturally lead him. Mr. Conduit, apparently on the authority of Mrs. Vincent, informs us that even when he was occupied with his paper kites, he was endeavoring to find out the proper form of a body which would experience the least resistance when moving in a fluid. Sir Isaac, himself, told Mr. Conduit that one of the earliest scientific experiments which he made was in 1658,[1] on the day of the great storm [September 3] when Cromwell died, and when he himself had just entered into his sixteenth year. In order to determine the force of the gale he jumped first in the direction in which the wind blew, and then in opposition to the wind; and after measuring the length of the leap in both directions, and comparing it with the length to which he could jump, in a perfectly calm day, he was enabled to compute the force of the storm. Sir Isaac added, that when his companions seemed surprised at his saying that any particular wind was a foot stronger than any he had known before, he carried them to the place where he had made the experiment, and showed them the measures and marks of his several leaps. This method of jumping to a conclusion, or reaching it *per saltum*, was not the one which our philosopher afterward used. Had he, like Coulomb, employed a shred of paper instead of his own person, and observed the time it took to fly through a given distance, he would have obtained a better substitute for an anemometer.

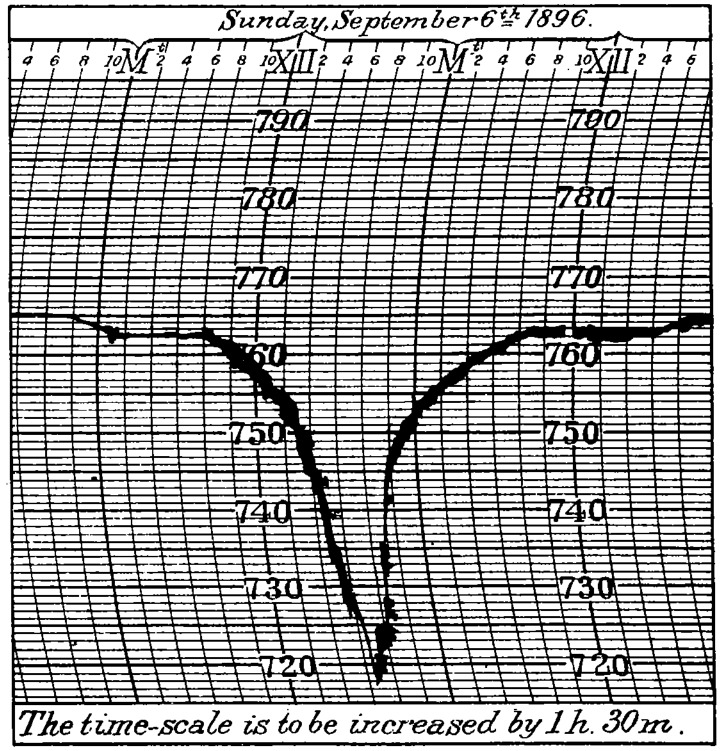
The reader will perceive that provided one jumps with the same force first with and then against the wind he may take half the difference of the two distances as being the effect of the wind in carrying him along while he is in the air. The wind acts upon him continuously during this brief interval just as gravity acts continuously upon any falling body. If, indeed, the observer simply jumps vertically upward or, still better, if he lets an inanimate spherical ball fall vertically downward and observes the amount of horizontal movement he has a direct measure of the force or pressure whence he may calculate the velocity of the wind. There are several reasons why such calculated velocities are rather rough compared with the results given by other methods, but it is certainly of the highest interest to find that Sir Isaac Newton in his boyhood, and before he could have known anything of Galileo's work, devised this simple method of estimating the energy and velocity of the wind.

BAROGRAM NEAR A HURRICANE CENTER.

Mr. A. Rouilliard, engineer in charge on the S. S. *Francois Arago*, has kindly sent the Weather Bureau a photograph of the Richard barograph curve for the time when the steamer crossed the hurricane center northeast of the Bahama Banks on September 6; a similar copy was sent by Captain Tissier to the Hydrographic Office and is published on its Pilot Chart. Mr. Rouilliard says:

> We have been right in the center of the hurricane and suffered considerable damage; two boats carried away, one man overboard, steam steering gear and hand steering gear both broken. In order to get out of the center we had to make our rudder fast with blocks and ropes in such a way that the helm was hard on port, this to keep the wind on the starboard bow, steering only with the engine which we kept more or less slow.

The following diagram, showing the barometric pressure during the 6th, apparently has its original time scale adjusted to the local time of some meridian a little to the eastward and Mr. Rouilliard says that time data should be increased by one hour and thirty minutes, probably, in order to get correct local mean time, or by one hour and thirty-one minutes to get seventy-fifth meridian time, or subtract three hours and twenty-nine minutes to get correct Greenwich time.



The first signs of a hurricane appear on the barometric sheet by the rapid fall beginning at 10 p. m. September 5, and the vessel had completely left the influence of the hurricane by 10 a. m. September 7. The position of the center of the hurricane at 9 p. m. September 6 was latitude 28° 50′ north, longitude 77° 0′ west of Paris, or 74° 40′ west of Greenwich, at which time the center was about 220 nautical miles distant from the vessel; this location is based upon an estimate of the position of the steamer at noon of September 7. The lowest pressure was recorded at 6.30 p. m. of the 6th, viz, 717.3 mm. (28.24), which must, therefore, have been very near the center of the hurricane. Nothing is stated as to the corrections to the barograph at this pressure. If we assume that the navigator was sailing northward, while the hurricane center was moving toward the northeast, we find that the vessel was in the southeast quadrant of the storm and approaching the center up to 6 p. m. of the 6th, and that after 8 p. m. it was in the northwest quadrant and receding from the center. This explains the fact that the accompanying barogram shows a somewhat more rapid fall in the course of the eight or ten hours preceding the center than during the same interval of time after the center had passed.

METEOROLOGICAL TABLES.

By A. J. HENRY, Chief of Division of Records and Meteorological Data.

Table I gives, for about 130 Weather Bureau stations making two observations daily and for about 20 others making only the 8 p. m. observation, the data ordinarily needed for climatological studies, viz, the monthly mean pressure, the monthly means and extremes of temperature, the average conditions as to moisture, cloudiness, movement of the wind, and the departures from normals in the case of pressure, temperature, and precipitation.

Table II gives, for about 2,400 stations occupied by voluntary observers, the extreme maximum and minimum temperatures, the mean temperature deduced from the average of all the daily maxima and minima, or other readings, as indi-

[1] Sir Isaac was born in 1642, December 25, old style.